DOCUMENT RESUME

ED 141 795 CS 003 585

AUTHOR Allain, Althea Saizan
TITLE The Effects of the Allain Reading System on Reading Achievement.
PUB DATE May 77
NOTE 89p.; Ph.D. Thesis, Walden University

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS Doctoral Theses; Grade 2; Primary Education; *Reading Achievement; *Reading Instruction; Reading Programs; *Reading Research; *Sight Vocabulary; Supplementary Reading Materials; *Teaching Techniques
IDENTIFIERS *Allain Color Pack Reading System

ABSTRACT

Five hundred second-grade pupils participated in a study of the effect of the Allain Color Pack reading system on reading achievement. Subjects were divided into equal treatment and control groups; each group was stratified according to low, average, and high reading ability determined on the basis of pretests of vocabulary and comprehension. The experimental group received the Allain treatment for 5 minutes a day for four months, as an adjunct to their regular reading program. The treatment consisted of exposing pupils to a 260-word sight vocabulary, through the use of word, phrase, and sentence flash cards with correlated readers. Analyses of results indicated that children who used the Allain Color Pack reading system had significantly greater reading achievement; that more subjects in the treatment group than in the control group shifted out of the low-ability reading level into the average and high reading-ability levels; and that subjects in the treatment group made greater gains in both vocabulary and comprehension.
(Author/AA)

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# THE EFFECTS OF THE ALLAIN READING SYSTEM ON READING ACHIEVEMENT

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A Dissertation Submitted in Partial Fulfillment of
The Requirements for the Degree of
Doctor of Philosophy

WALDEN UNIVERSITY
May, 1977

CS 003 585

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ACKNOWLEDGEMENTS

The investigator wishes to express her heartfelt thanks to her numerous friends and acquaintances for their diligent support, encouragement, and assistance throughout the preparation of this dissertation.

Special gratitude and appreciation are due the following in terms of professionalism, devotion, and dedication:

Dr. Alfred Aubry whose overwhelming generosity has led to the completion of this study.

Dr. Rodney J. Reed whose confidence, and encouragement have led to the fulfillment of a lifelong ambition.

Dr. Melvin L. Gruwell whose assurance and guidance rekindled the will and energy to go on.

Dr. Dorothy Pillman and Dr. James Shade for their understanding and unusual generosity.

The Orleans Parish School Board: Dr. Harris, Dr. Matthew Proctor; Dr. Everette Williams and all personnel who provided professional assistance and utilization of the faculties for conducting this study.

My dear friends--Earline and Warren Parker, Robert "Bob" Tucker, Al Gourrier, Ursulie Reeves, James Hill, and Harold Johnson for their ready assistance and untiring faith and devotion throughout this endeavor.

Additionally, the investigator would like to extend profound gratitude to her husband, Dr. Joseph L. Allain, Jr., and to her children--Nena, Anthony, and Mark for the love, fortitude, patience, and sacrifices they so gracefully endured during the achievement of this goal.

Finally, this work is dedicated to my mother and my late father, Charles Darrel Saizan, whose pride by the completion of this undertaking would have been boundless and overwhelming.

# CHAPTER I

## INTRODUCTION AND STATEMENT OF THE PROBLEM

Reading is one of the few academic areas in which success from all students is demanded. (43:1). From early times to the present, competence in reading has been and still remains the cornerstone of education. (20:11). Everyone in civilized areas - child, adolescent, and adult - has a very personal need for being an effective reader in order to obtain information, get ideas, ideals, aspirations and to understand and be able to live harmoniously within his total environment. (43:1-5).

While deeper understandings and considerable progress have been made in areas of science, history and other disciplines, children with severe reading problems are still a major concern of educators in American public schools today. (36:142-143).

Extensive reading retardation found in most schools is the onus that prevents pupil efficiency and the basis for much of the criticism directed at educational institutions by the public. In order to resolve this problem administrators must become cognizant of the underlying causes and be accountable for their improvement and correction. (42:105).

It has been estimated that twenty-five to thirty-three per cent of our children are so severely retarded in reading that scholastic failure and serious maladjustments are inevitable. As a result, human resources are lost, and society suffers. (42:1-3).

Basically, the reading process is based upon two major skills: word recognition and comprehension. The first skill in the hierarchy of

word recognition skills is the acquisition of a basic sight vocabulary (42:11-12).

According to Frost, a basic sight vocabulary is:

> A group of words the selection of which is developed on a basis of high frequency in our language. Material is developed which repeats each word a sufficient number of times for most children to recognize. (17:176).

Frost further suggested that this group of words forms the nucleus from which subsequent reading skills radiate. (17:144-145).

Karlin recommended that students who do not have an adequate sight vocabulary should receive help in this area first. The words for this purpose are those which comprise the majority of words found in primary grade reading textbooks. (29:424).

Chall, who did an in-depth study of beginning reading instruction in American and in British schools, indicated that reading instruction in its beginning stages must be grounded in these concomitant learnings: mastering and applying letter-sound relationships; enlarging sight vocabulary, and using context clues. The report also indicated that most reading authorities agreed that children in primary grades should be taught words that appear most frequently in general reading matter and that are within the child's listening and speaking vocabulary. (5:14-15).

In further support of the need for basic words, Strang stated:

> Before trying to associate sounds with letters in words, the child should know by sight a number of words whose meaning is familiar to him. Different authorities place this number at anywhere from fifty to five hundred. (49:123).

Heilman stated a number of reasons which have been cited as justification for teaching and learning some whole words as units during the initial stages of reading instruction. They were:

(1) The child's knowledge of, and use of, oral language involved the meaningful use of words and combination of words. The learner needed to move from what was known to what needed to be learned. Reading became more meaningful when the child dealt with word wholes as units, rather than exclusively working with letter sounds. Meaning is inherent in the total word and in the specialized use of words rather than in the individual letter-parts of words. However, work on word wholes and letter sound analysis could be an integrated activity.

(2) Many words met in beginning reading do not lend themselves to phonic analysis. These must be learned as sight words.

(3) If an individual had a stockpile of sight words, he would be more able to see and hear similarities between the known words and the ones to be learned.

(4) Learning whole words taught children to look at the entire word from left to right, as opposed to some phonic systems which advocated teaching the vowel sound first. For in a vast majority of words, this mode of attack would start the analysis in the middle of words, rather than at the beginning.

(5) The child must not analyze each word in reading. If, however, he was taught only to analyze words in the beginning instruction, he will probably continue to do so. (25:16-18).

Though one might approach the development of word recognition skills through word analysis, without immediate recognition of words, speed of reading was too slow and resulted in interruptions of thought flow and, consequently, a reduction in recall of the content read. It appeared that in order to read with comprehension, the ultimate goal of reading instruction, one must be able to recognize words immediately and

to transfer these symbols into their proper meaning as determined by the particular setting in which the words occurred. (68:29-30).

While most reading authorities agreed with the concept of teaching the basic sight vocabulary, there were others who were vehemently opposed to this concept. Some of whom were Bloomfield, Flesch, Olson and Lippincott. Other reading authorities who also opposed this initial teaching were those who advocated the "purely" phonetic approach, the linguistic approach, the comprehension approach, the alphabet-reformer's approach, the words-by-color approach and other lesser known approaches. (5:13-15). Although there exist some opposition, the vast majority of recognized reading experts recommended the practice of teaching a sight vocabulary regardless of the grade span in which this skill was needed. Without this practice, they felt, future reading problems were inevitable. (42:3-10).

In an attempt to lessen this problem, the Allain Color Pack reading system was specifically designed to teach a basic sight vocabulary in a relevant, meaningful way while incorporating the vernacular and literary patterns of disadvantaged children in its syntax.

The philosophy of the Allain system was based upon Dechant's theory that:

> The pupil learns by doing. Learning occurs under conditions of practice, and overlearning is of crucial importance to poor readers. Children generally become better in word recognition the more frequently they see the word...The pupil's practice must be both motivated and rewarded and it should be varied from time to time. (7:572).

The philosophy was also influenced by Skinner, Hull, Spence, Thorndike, Stephens, Gates and others whose theories of the importance of reinforcing contingencies in the classroom made for a more satisfying learning environment. (2:94-96, 31:50-57, 55:105-119, 23:10-11).

The primary objective of the Allain system was to teach a basic sight vocabulary of two hundred and sixty words taken from high frequency words found in popular primary reading textbooks in use during the last five years. Others were taken from frequency counts of existing sight word lists. Some were obtained from words requested by the children themselves through the "organic" approach used in the Language-Experience method of teaching reading.

The secondary objective was to create in children both the desire to read and a love for reading.

The Allain reading system contains seven integral components which correlate to strengthen the learning and retention of the two hundred and sixty words to be taught. It is composed of two boxes, one to be used by the students, and the other to be used by the teacher.

Each student's box has seven hundred and eighty flash cards divided into thirteen color levels. Each color level has twenty word cards, twenty phrase cards and twenty sentence cards. The word, phrase and sentence cards correlate to provide greater associations and meanings for words to be mastered within a particular level. There are seven color discs for initial recognition of colors and thirty-nine readers, three similar copies for each of the thirteen levels. There is a package of crayons which is used to plot progression from level to level. The student plots progression under the supervision of the teacher. The student plots the chart for reinforcement and intrinsic motivational purposes. (Some teachers utilize "token reinforcement" as the child moves from level to level).

The teacher's box contains the Teacher's Manual which delineates the philosophy of the system, its instructional objectives, directions

for testing and placement procedures, methods and techniques of instruction, and a listing of the sight words to be taught. This box also contains the necessary testing materials, progress charts and materials necessary for record keeping.

The Allain reading system is ancillary. It was designed to be used as an adjunct to the basic reading program within a given classroom.

The motivational factor for developing this material, which was five years in the making, was to help children with reading problems in the New Orleans public schools. For just as educators across this country have the serious problem of providing relevant education for students, educators in New Orleans have the same serious problem.

If this society is to benefit through the development of our children in our educational institutions, something must be done to change this condition.

Fantini, in his article on "Institutional Reform," stated:

> Modern education should be tied to the needs of society, of groups, and of individuals, and to the encompassing growth and development of all of these. An obsolete educational institution handicaps all learners, teachers, administrators, communities, and the larger societies. Thus, we are all disadvantaged. (72:43).

In consideration of the above, any method, technique, reading system or innovative idea which offers possibilities of further developing our children, should be evaluated and, perhaps, utilized. (73:44). It was within this framework that the Allain Color Pack reading system was implemented for evaluation in a selected school district.

## Purpose of the Study

The purpose of this study was to measure the extent to which the Allain Color Pack reading system effected reading achievement in terms of increased vocabulary and comprehension skills for selected second grade students in the New Orleans Public School System.

## Hypothesis

The hypothesis tested in this study was: Second grade students who used the Allain treatment for a period of four months, in addition to their regular reading program, will show additional gains either in vocabulary or in comprehension or in both, above expected reading growth as measured by the Gates-MacGinitie Reading Tests with significance of the difference at the .05 level of confidence.

## Related Questions for the Study

(1) Did the treatment variable in this study make a difference in vocabulary or comprehension growth for the experimental group?

(2) Was there any shifting in the two group in terms of drops and gains between the three levels for both vocabulary and comprehension?

(3) Did subjects in the low ability treatment group make a greater shift out of the low group into the average and high groups as compared to the low ability subjects in the control group?

(4) How representative were the findings and can the results be generalized to similar circumstances and subjects?

## Definition of Terms

Allain Treatment: a system for teaching a sight vocabulary of two hundred and sixty words in a color-coded, structured and systematic fashion.

Expected Reading Growth: growth in vocabulary and comprehension a child should make after four months of reading instruction--this growth can be expressed in terms of either gains in reading months or the equivalent raw scores as measured by the Gates-MacGinitie reading test.

Gains: growth beyond the expected gains in either vocabulary or comprehension or in both in terms of months or the equivalent raw scores as measured by the Gates-MacGinitie reading test.

## Significance of the Study

The major objective of all instruction is learning; learning to read effectively demands systematic developmental instruction in reading skills. (42:3). As previously cited, a major reason some children experience reading problems may be their inability to recognize certain words by sight. (29:424).

In the introductory section of this paper it was cited that many reading experts were in agreement that the child should have mastered some words by sight before more sophisticated reading skills are taught to him.

Many primary teachers have been groping for an effective reading tool, device, technique or method to assist them in their teaching of a basic sight vocabulary. Therefore, if statistically significant results were obtained from this investigation, these findings could be helpful to the field of reading because they could be used to fulfill these functions:

(1) Increase ability to teach a basic sight vocabulary by providing a new system developed for that purpose.

(2) Present empirical data which would justify the use of the Allain system as an innovation in the teaching of reading.

(3) Present materials which were written primarily for culturally deprived children through the use of terms, speech patterns and life-styles to which they could relate.

(4) Provide an investigation which could be replicated under similar conditions in various geographical settings for substantiation or refutation of the study's findings.

## Basic Assumptions

In this investigation, the following assumptions were made:

(1) The sample was comparable to the standardization group on which the table of norms for the Gates-MacGinitie Reading Tests was based.

(2) Teachers in the experimental group used the Allain system for approximately the same amount of time daily for the duration of the study.

(3) Observations in both experimental and control groups were normally and independently distributed.

# CHAPTER II

## REVIEW OF THE LITERATURE

### History and Motivation for Research in Reading

The significance of reading in our modern schools is indicated by the amount of research that has been devoted to it. No single problem has received more attention from educational and psychological laboratories than the problem of understanding the reading process. (59:5).

Research in reading began in the laboratories of Europe through the curiosity of psychologists concerned about the mental activities required in reading. The findings of early researchers like Cattell, Erdmann and Dodge showed that we read by phrases, words and letters, according to the reader's familiarity with the reading material, his competence in reading, and the difficulty of the material read. (27:469).

A series of studies grew out of interest in the behavior of the eyes in reading. About 1879, Javal made the important discovery that eye movements in reading are discontinuous, consisting of a series of alternate movements and pauses. This discovery was exciting and precipitated numerous studies of problems on the nature and function of fixation movements and pauses, the possibility of vision during fixation movements, and the location and length of fixation pauses. (71:1087).

In 1844, Valentius did what was the first recorded study on the perceptual nature of the reading process. Facts obtained for this study and from related early studies of perception and eye movements in reading

presented a new and stimulating view of the nature of reading and some of the processes involved. These studies also suggested many new problems for investigation and provoked deeper interest in the scientific study of reading. (71:1086).

Between 1911 and 1920, however, the number of studies reported was almost six times that during the three preceding decades. (71:1087). From 1921 to 1940, the amount of research published continued to increase at a phenomenal rate. During World War II, it decreased considerably, but soon increased again until one hundred or more studies are published today. (71:1088).

Since 1920 the scope of research in reading has broadened steadily until it now includes problems that arise before children enter school and that command attention at various levels of education from primary grades through college and adult education. As a result, we are far more conscious today than formerly of the complexity of reading problems and are far less certain of the answers to many of them. (71:1087-1088).

In 1925, Gray published a monograph collating the results of 435 studies done prior to 1924. He concluded that the research up to then had been fragmentary and incomplete. Gray suggested further that researchers should attempt to coordinate their research efforts with the aim to integrate known theoretical principles. (21:8-15).

Traxler in 1955 prepared three monographs which traced twenty-three years of research in reading. He summarized this research and found the causes of poor reading to be numerous and varies. He described these causes as being those of constitutional, intellectual, emotional, educational, and environmental factors. (59:283).

## Research on Basic Sight Word Lists From 20 B.C. to the Present Seventies

Most reading teachers feel that beginning readers ought to be taught to recognize instantly, at sight, a number of basic, frequently appearing words. The knowledge of these high frequency words would have great utility at all levels of reading development. Furthermore, this conceptualization would help to make possible a focus on meaning as well as decoding in early reading, and at the same time serve as a foundation for analytic phonics instruction. (80:435).

Otto and Stallard conducted a study of sixteen different lists of common sight words to determine the "One Hundred Essential Sight Words" and to learn about the origin of the basic sight vocabulary. They found that sight word lists had been used in Greek, Roman and early European countries prior to 20 B.C. and have changed forms many times. (81:1-26).

Historically, it was reported that the exact date that the first sight word list was created may never be known, however, it probably was devised in the following way: A teacher recognized a specific difference between a good and a poor reader in his or her class. The better reader was able to recognize instantly the words which occurred regularly while the poorer reader lacked this specific skill. To eliminate this difference, the teacher selected those words that occurred frequently, listed them, and then drilled the poorer readers until they were able to identify each word every time it appeared. (81:1-26).

Variety in the methodology of teaching reading did not appear until the early 1500's, when the importance of learning to read became more apparent. The invention of the printing press, personal desire to read

the Bible, and the emergence of the democratic principle that all people had a right to read increased the number of materials used to teach reading, of which the basic sight word list was one. (81:3).

According to Johns, Edward W. Dolch published a list of basic sight words in 1936 which had been identified as the dominant word list during the last decades. In recent years, however, this list has been under attack because of two major objections. One objection focused on the age of the list which was published since the 1930's, but was taken from studies made in the 1920's. Those who attacked it felt that our vast cultural changes had made many of the original Dolch words obsolete. Another objection challenged the basis on which the Dolch list was compiled. In compiling his list, Dolch selected 193 words that were common to three word lists. He then added another twenty-seven because he felt that these twenty-seven belonged to the same group of words as the previous 193.

Johns summarized his article by concluding that those who criticized the Dolch list had basically sound reasons, but, he felt that the list was still a good one, but that it should undergo upgrading and revision. With the possible exclusion of some of the words, 31 which were not found on any contemporary lists, the Dolch list could continue with enhanced use in the schools of the seventies. (78:375-380).

Otto and Chester criticized the Dolch list as being "pseudoempirical." They found that the three lists from which the list was made were: (a) The International Kindergarten Union Vocabulary List. This list, published in 1928, included 2,596 words that the child study committee found to be common to the vocabularies of children entering first grade. (b) The Gates Primary Word List. Published in 1926, which included

1,811 words considered important in children's reading. (c) The Wheeler-Howell First Grade Vocabulary List. This was a list of 453 words found in ten primers and ten first grade readers published in the 1920's. (80:435-443).

Within the last ten years, Otto and Chester reported that six new lists for teaching basic sight words had been developed. The first of these lists appeared in 1967. It was called the Kucera-Francis List of 500 words. The list is a rank ordering of 50,406 distinct graphic words (types) from samples of 1,014,232 words (tokens) of natural language test. The 500 passages in the total sample represent:

> the full range of subject matter and prose styles, from the sports page of the newspaper to the scientific journal and from popular romantic fiction to obtuse philosophical discussion. (80:435).

Essentially, the Kucera-Francis List is an itemization of the most frequently recurring words taken from "adult" materials.

In 1971, the Johnson List appeared which was a list of words drawn from the Kucera-Francis List and a compilation of the most frequently spoken words in the spontaneous speaking vocabulary of primary-grade children as shown in the Murphy study. Johnson selected 306 words, fifty of which appeared frequently in the Murphy study but which were definitely high up in frequency distribution on the Kucera-Francis List. Johnson's list was limited since it was taken purely from adult materials, not children's materials. Johnson extrapolated a children's sight word list from a frequency ranking of adult words. (80:435).

Also in 1971, the American Heritage Intermediate corpus provided a basis for a beginning sight word list that included the words which occurred most frequently in printed materials for children from grades three through nine. A list of 500 words was ultimately obtained from

a computer-assembled selection of 5,088,721 words drawn in 500-word samples from 1,045 published materials (texts). The texts were carefully chosen to represent the range of required and recommended reading to which pupils in the United States were exposed in grades three through nine. Otto and Chester felt that the major difficulty with the American Heritage Intermediate List was that it had been drawn from written, and edited material, and that it had no oral input nor early primary input. (80:436-443).

In 1972, Otto and Chester developed an extensive compilation of most of the basic sight word lists which have been cited in this article. The authors compared the basic words from the Dolch List, the American Heritage Intermediate List, The Kucera-Francis List and the Johnson List. From their comprehensive study, they supported empirically their choice of 500 words that beginning readers should be expected to know. They suggested that this corpus of 500 words be called "The Great Atlantic and Pacific Sight Word List" since the words were taken from several lists from across the country. They recommended that:

> The Great Atlantic and Pacific Sight Word List is a viable alternative to any sight word list offered to date. Its relevance is empirically demonstrated. Since the list was derived from third grade materials further breakdowns would make the list more usable in the classroom. One way to proceed would be to get a learnability rating for each word. Then the most "learnable" words would be presented first to assure success. (80:443).

In 1974, Hillerich researched the Durr List developed in 1973 which was made up of words from a computer study of high frequency words found in trade books for children. Durr's study involved eighty library books which primary children were able to choose freely. Librarians from varying socio-economic levels were asked to keep records of the most popular books chosen. From the eighty selected books, 188 words occurred

more than 88 times and accounted for 68.41 per cent.

The Murphy List was also reviewed by Hillerich. This list contained 727 words from a tabulation of the running words in the oral vocabulary of children from kindergarten through grade three. A total of 1,195,098 running words were originally counted. The final selection of 727 were those words which the children used at least fifty times each over a given time span. (76:377). In his entire study, Hillerich researched fourteen word lists with still a fifteenth one in the making. His evaluation and assessment of these lists were that each one reflected the other. The use of one over another one was, in his opinion, a decision which should be made by the teacher. Hillerich ended his report with a pragmatic conclusion:

> . . . that our English changes frequently—as we add or drop words. But a list of high frequency words reveals primarily structure words, which are timeless: wars may be escalated and people fragged or televised while few sit in a parlor anymore, but we have yet to replace or supplement the, and, or to. (76:353).

## Investigations on the Teaching of Sight Words in Four Different Educational Settings

In order to provide an organized and succinct review of the literature on the teaching of a basic sight vocabulary, investigations were categorized into distinct groups, rather than arranged in chronological order. This was done for the purpose of facilitating the reading of this section.

### Pre-School Settings

Pre-school children spend many hours watching television. Beyond a doubt, their experiential backgrounds are being broadened, but are they

learning to recognize and recall any of the words which they see almost daily on these special children's programs?

An investigation was undertaken by LaPlante in 1968 to determine their ability to recognize words shown frequently on commercial television. Its major purpose was to ascertain whether or not pre-school children had acquired a stock of sight vocabulary words as a result of their watching television for long periods of time. A sample population of 187 children from the Baltimore area was randomly selected from six pre-school classes. The sample population was drawn from three schools representing three levels of socio-economic backgrounds.

Twenty-four words were selected by examining the "logs" of the most popular children's programs. These words were presented in three different forms: just as they appeared on the television, as they appeared on the television without color, and as they would appear in manuscript.

The major findings of the study were: children do not recognize words they see and hear concurrently on commercial television with the frequency that some educators suggested. Children demonstrated higher performance when words were presented just as they appeared on television, but the majority of them could only recognize one word presented to them in manuscript. Children with higher IQ's were able to recognize more words, and boys were able to recognize more words than girls. This study suggested that pre-school children learn few or almost no words from commercial television. (107:1-126).

Felicetti, at Indiana University in 1970, studied the effect of integrated stimuli and prompting on word recognition retention in small children. The purpose of the study was to determine effects of various

prompting procedures in teaching children a sight vocabulary. Results of her investigation suggested that pre-school children would retain words for a longer period of time if they were shown a word on a frame which was immediately followed by another frame which contained some cue stimulus to the word shown to them on the first frame. Conversely, they would have less word retention if they were shown the word frame without the following cue frame. (99:1-128).

Studies by Montessori, Doman and Moore support the findings that young children were much more capable than was once believed of learning to identify, write and sound letters of the alphabet, blend sounds and combine words into meaningful sentences. (8:1-6).

## Developmental Reading Settings

### Kindergarten Investigations

In an article cited earlier in this section, Otto and Chester suggested that a "learnability" study be made to determine which sight words would be the easiest ones to learn so that they could be taught first. Otto and Chester made this recommendation in 1972. In 1973, Gustafson attempted to rank the first 100 words of the Great Atlantic and Pacific Sight Word List according to learnability in a research project through the University of Wisconsin. Subjects in the study were 200 kindergarten pupils in eight Wisconsin elementary schools. They were administered the Murphy-Durrell Reading Readiness Analysis: Learning Rate Subtest. The subjects were then stratified according to their Murphy-Durrell scores and randomly assigned to one of twenty groups.

The first 100 words of the Atlantic and Pacific List were arranged in alphabetical order and broken into five groups. The words were

randomly assigned to twenty groups of five words each. The assignment of the words was controlled for both initial letters and length of the words. The twenty groups of words were then randomly assigned to the twenty groups of subjects.

Each word was presented on a flash card accompanied by an oral sentence which illustrated the most frequent usage of that word. Later the words were presented in isolation to the subjects. Through appropriate statistical procedures, it was concluded that no significant differences were found between the overall learning ability of males and females or between the learnability or frequency rankings of the words. (101:1-84).

In a related study, Mangieri, at the University of Pittsburgh in 1972, investigated the learning difficulty of sixty-three words most commonly used in beginning reading and whether any one of three methods—the phonic, the kinesthetic, or the meaningful context was more effective than the others in the learning of these sixty-three words.

An original population of 188 kindergarten pupils was given IQ tests and placed into high, medium, or low IQ ranges. Random selection within each range was used to choose nine equivalent groups each of which was comprised of four high, four medium, and four low range pupils for a total sample of 108. Random selection was utilized to divide the sixty-three words into three lists of twenty-one words, and three methods of instruction were employed. The study was of three weeks duration. Through the use of the Spearman rank order correlation coefficient, it was concluded that a non-significant correlation existed between the rank order frequencies and the rank order of difficulty for these words when taught by three different methods.

The study suggested that the kinesthetic method was slightly

superior to the other two. (This study supported Fernald's method which was developed in the thirties). (110:1-101).

Holman, at the University of Wisconsin in 1972, was interested in the effects of interest in certain sight words on the part of children in their learning of these words. The subjects were forty-eight boys and forty-eight girls of high and low intellectual capacities from kindergarten classes. They were divided into three treatment groups. One group chose the seven words which they were interested in learning. The second group was given a list of the words chosen by the first group. The third group was given a list of words considered common to the vocabulary of young children.

The results of the study indicated that children learn words which interest them much faster than they learn words in which they have no interest. (103:1-110).

These results suggested the importance of motivational factors in learning. They supported a position that learning may be in part, a function of the significance of the material for the child as suggested by some educators like Ashton-Warner. The study also indirectly added to the validity of the concept of intrinsic motivation and that performance was closely dependent upon motivation. (43:269).

An investigation by Brown in 1966 investigated the relationship of the knowledge of consonant letter names and sounds to the learning of an initial sight vocabulary. It was conducted at the University of Connecticut using sixteen kindergarten children from six elementary schools. Two treatment groups were taught five different consonant letters. After their knowledge of these letters was evidenced, the subjects were then exposed to ten words beginning with the consonant letters they had been taught.

Results of a t-test of significance for differences between means revealed no significant differences in performance for any of the groups in the immediate recall situation. However, boys had greater recall than girls and that a knowledge of consonant letter names and sounds facilitated delayed recall of words learned through a sight technique, but was of no significance in an immediate recall situation. (93:1-81).

At the University of Illinois in 1966, Duell investigated various prompting techniques in teaching sight words to 165 kindergarten children. In one group, the children were forced to look at a certain cue following the initial presentation of the words. In another group the children were not forced to look at the cue following the initial presentation of the word. Duell's study suggested that children who were forced to notice the cue learned 40 per cent more words than the children who were not forced to notice the cue. (97:1-72).

Christina, at Syracuse in 1971, investigated the effect of teaching a sight vocabulary to kindergarten children using two spelling patterns, the traditional spelling of words and Initial Teaching Alphabet spelling of words. She also investigated the effects of the look-and-say word presentation or the tracing of the word presentation to determine which of the two methods and spellings was the better.

The analysis of data revealed that the use of the tracing technique resulted in greater learning of the words. There was no statistically significant difference between the groups and greater knowledge of words using either one or the other spelling patterns. (94:1-146).

In 1974, Balk studied which of three methods would be most effective in teaching sight vocabulary to 120 white kindergarten children from an upper middle suburban community in New York. The question asked in this study

was which of three conditions would be most effective for teaching sight words to these children: no elaboration, picture elaboration, or sentence elaboration.

Balk concluded that offering the child only the word to be learned was a very efficient way of teaching him to read sight words. She suggested that sentence elaboration appeared to interfere with learning. Picture elaboration actually became a distractor and was offered as a theoretical explanation of why this condition hindered learning. (91:1-71)

Balk's study supported Packer, cited earlier, who suggested that advantaged children can learn by any method since their backgrounds have systematically and traditionally been nurtured in the value of academics. (82:559).

One of the most persistent criticisms of today's basal readers is that the content is too bland and fails to interest the child.

Asthon-Warner had recently argued that affective meaning (both positive and negative) facilitated the learning process and that both kinds of words ought to be used in teaching a child to read. (1:13-16).

Sheviakov from the University of Wisconsin investigated the role of word evaluation in the acquisition of a sight vocabulary in 1970. According to Sheviakov, to date, there had been no evidence that the vocabulary in basal readers was bland or that affective meaning would facilitate sight word recognition. (114:1-129).

## First Grade Investigations

Methodology of teaching sight words has also been the concern of first grade teachers and of researchers who were interested in that area.

A study by Hession at Columbia University in 1973 examined methods of having beginning readers learn basic sight words through the use of recommended picture-story books incorporating a multi-media approach. Thirty-five randomly selected suburban, white first graders in Croton-on-Hudson, New York were randomly divided into three groups and exposed to three methods to determine the number of sight words they would learn while using each of these methods. One method used a multi-media approach, the second method used magnetic-tape cassettes for drill on thirty words from the Dolch list, and the third group spent time equally divided between the first and the second groups.

The findings from the study indicated that the first group learned more words than the other two. It also suggested that children who have free access to various media will learn a basic sight vocabulary faster than those who do not have this opportunity. (102:1-115).

In 1970, Kovacevich from Case Western Reserve University used three different methods for teaching the sight vocabulary to 108 average first graders. He used three different types of cards to present his vocabulary. He used "Regular" cards with the word printed in the center. He used "Impact" cards with the word repeated thirteen times, but the word emphasized was printed boldly in the center; he used "Impact Plus" cards with the word repeated thirteen times with the center word and another word in a ten degree inferior position in bold print.

The use of "Impact Plus" cards was the superior treatment for all groups in terms of rate of acquisition. The study demonstrated that alteration of stimuli in word presentation could significantly increase the rate of sight word vocabulary growth in first grade boys, suggesting the need for differential instructional strategies for boys and girls.

(106:1-68).

The theories of reinforcement, motivation and the transfer of learning have been interpreted in many ways dependent upon the particular learning theory in which the educator believed.

In a study by Anderson in 1971, seven word games were used to test their impact on sight words in first grade children, and to test the retention of the words. It was concluded that statistical results indicated no significant differences between students who used the word games and those who did not. However, differences between mean scores of the experimental and control groups slightly favored the experimental group. This study was conducted at the University of Maryland in 1971. (90:1-215).

Reinforcement had intrigued educators for a long time. Dickerson from the University of Maryland in 1975, decided to understand and determine how well recognition of sight vocabulary could be obtained with first grade children using the concept of reinforcement. The subjects were 128 girls and 146 boys in 30 first grade classes in the District of Columbia public schools. Specifically, the purpose of the research was to investigate whether sight vocabulary games, passive sight vocabulary games or traditional sight vocabulary worksheets caused any gains in sight vocabulary recognition. The learning task was 48 sight vocabulary words, taken from the Harris-Kacobson Core Vocabulary List for primary students.

The objective of Dickerson's investigation was to determine how well sight vocabulary words could be reinforced in first grade students when an innovative game approach was used. The conclusion was that games could be a viable source of reinforcement in teaching children a sight vocabulary. (95:1-351).

Wilson from the University of Alabama investigated the

effectiveness of three procedures for teaching sight words to children. The purpose of his study was to determine whether automated (use of teaching machines, etc...) non-automated (oral instruction and use of the words on picture word cards and sentence completion sheets along with traditional group instruction) adjunct autoinstructional (combination of oral use of the words in sentences and the use of teaching machines) or control group (included to measure the effects of extraneous variables, viz., maturation, testing...) would make greater gains in sight vocabulary. The analyses of the testing data yielded these results: There were no statistically significant differences in achievement among the groups that could be attributed to the four treatment methods; nor were there statistically significant differences in achievement due to interaction between ability levels and treatment. (117:1-107).

Educators have long agreed that reading readiness is not a single, unitary trait, but the result of many interacting factors. Only when the teacher really had knowledge of the child could he or she determine the "teachable moment." Yet many authorities considered the child's knowledge of the letters of the alphabet was one important factor in his readiness to read. (43:84-113).

An interesting study was done with black children by Serwer from New York University in 1966. The investigation was made to determine the relation between five measures of reading readiness and a simultaneous measure of acquiring a sight vocabulary.

Subjects were 144 urban disadvantaged black first grade children in two "special service" schools in Harlem, New York. (Harlem is a ghetto area within New York City). Selected as independent variables of reading readiness were comprehension of oral language, auditory discrimination,

visual discrimination, knowledge of letter names, and visual-motor coordination.

In general, the hypotheses were that positive relations existed among the five independent variables and the acquisition of a sight vocabulary; girls would achieve a higher mean score than boys, and kindergarten experience would have a favorable effect on the criterion measure.

Serwer concluded her study with the following findings: a comparison of the mean scores with the test norms revealed that in all five readiness measures, this sample was at or below the 30th percentile. The lowest, auditory discrimination, was at the first percentile. In acquisition of sight words, their mean score was closer to the normative 50th percentile, indicating close to average ability to acquire a sight vocabulary. (115:1-136).

Two investigations done in 1970 studied the effects of meaningfulness of words on the ease of learning a sight vocabulary. Adams, from Michigan State University, found that the more meaningful material is the faster it will be internalized by the child. His study was confined to first graders, forty in all. The findings were that two factors, meaningfulness and familiarization of material, influenced the first graders' rate of learning the sight vocabulary. (89:1-98)

Packer's study of Ashton-Warner's method of eliciting a "key vocabulary" from disadvantaged children showed extremely promising results. The Ashton-Warner method was geared to the problem readers in an effort to teach them words which were meaningful to them and which were parts of their lifestyles. Warner felt that children needed to learn various categories of words which were not present to them in their pre-primer texts.

Warner's method was a rather "eclectic" method which combined

several older methods in an effort to elicit from the children words which they wanted to learn. This group of words was called the "key vocabulary." Warner's "key vocabulary" differed from the primary vocabularies found in regular textbooks on fourteen different categories of words.

Warner's words had little or no relationship to the words presented to them in similar categories found in the basal readers.

Packer found that Warner's method had significance for both disadvantaged and advantaged students. He concluded that teachers might find that students could learn to recognize and retain words which were taken from their own language experiences as the basis for the sight word and vocabulary skill development. (82:559-564).

Balk, cited earlier, found that the simple presentation of a word on a card and the concurrent verbalization of that word by the instructor was enough for teaching and for retention of a sight word for middle class children. Packer's study indicated the need for greater variety in the teaching of words to the culturally deprived child.

Sheviakov disagreed completely with the Warner argument that the material of present day textbooks is bland. He arrived at that conclusion by having children categorize words from basal texts in terms of the word's negative or positive affective meaning as interpreted by the children themselves. Additionally, Sheviakov disagreed that the affective or evaluative meaning of words was related to their "learnability" as sight words. (114:1-129).

## Second Grade Investigations

Will the acquisition of a basic sight vocabulary have any effects on reading and writing performances of second grade pupils? Will

knowledge of these words bring about a transfer of learning to other subject matter areas?

Duquette from Arizona State University sought these answers in his 1970 study with seventeen treatment and seventeen control groups. He reported significantly positive relationships existed between knowledge of sight words in the treatment group and its favorable functioning within the entire language arts spectrum. These results were not manifested by the seventeen control classes. (98:1-116).

The findings of Hession and Duell have been largely supported by Mork from Syracuse University who in 1971 employed essentially their same approaches and derived at their same conclusions. (102:1-115), (97:1-72).

Mork's investigation which used forty-three second grade students whose IQ's ranged from 73 to 133 was undertaken to ascertain if certain physical behaviors effected learning to read. In this study, Mork demanded children to look at and to read along with the reader while pointing to each word that was being read to them. Through an analysis of data obtained from this study, Mork concluded that listening to the oral reading and following along visually while pointing to the words being read resulted in increased vocabulary growth for most of his samples whose reading performances were superior to his control group's reading performances. (111:1-131).

### Fourth and Fifth Grade Investigations

Impulsive and reflective cognitive styles of learning in children were investigated as factors which might influence their performances on the Dolch Sight Word List. This study was undertaken by Alta Palmer at

the Louisiana State University in 1975. One hundred and thirteen normal advantaged children, sixty-nine boys and sixty-four girls, were used in the research. Appropriate testing measures were employed to classify the particular learning style each sample demonstrated. The conclusions of this study were: sex differences were more significant than cognitive style in the rate of errors; boys made more errors on the word list than girls; reflective students made twice as many self-corrections without a cue from the examiner than the Impulsive students. Reflective students performed much better than Impulsive students on the criterion measure. (113:1-85).

Horsky in 1974 at the University of Iowa examined what letter shapes and forms within a word's configuration caused children to perceive some words with greater facility than others. His investigation dealt with the following factors: Do children perceive ascending or descending letters forming parts of words faster? Do they perceive single letters faster than whole words? Do they perceive shorter or longer words faster? Do they perceive one syllable or two syllable words with the same number of letters faster?

Fifty fourth and fifth grade boys and girls were used in this research, twenty-nine boys and twenty-one girls from nine to eleven years of age. After a designated period when every imaginable configuration of words had been presented and tests had been administered to determine the rapidity of word recognition and recall, data were obtained. The data provided the following conclusions: letters with ascending parts were perceived faster; whole words were perceived faster than letters in isolation; words with both ascending and descending letters were perceived even faster than words with just ascending letters;

longer words were perceived faster; and two syllable words were perceived faster than one syllable words of the same length. (104:1-211).

In 1975, Gibson at Mississippi State University, investigated the effects of multi-media and basal reader approaches to teaching reading on morale and reading achievement gains of fifth grade students. The purpose of his study was to investigate the effects of a diagnostic/prescriptive multi-media instructional approach and a traditional instructional approach in reading on both reading achievement and the morale of the students.

Two experimental and two control groups were formed into which 120 randomly selected fifth grade students were placed along with four randomly assigned teachers. Students were tested before and after the experiment. Results indicated that reading achievement of the experimental groups was significantly higher than that of the control groups and that school morale for males in the experimental groups was significantly higher than that of female morale in the experimental groups.

The null hypothesis that predicted no significant reading growth nor morale changes for experimental groups was rejected. (100:1-97).

## Remedial Reading Settings

At the University of Illinois, Page investigated the effects of sight word acquisition in primary children with reading problems by using peer and upper-grade tutors. Essentially, the results of his research were that primary children profited through the use of primary tutors on a one-to-one basis. Tutored children learned more words than non-tutored children; primary tutors, themselves, did not show appreciable growth in sight word recognition. Primary tutors and upper grade tutors

employed the same techniques.

Page concluded that primary tutors could be great assets for slow learning primary students, but the primary tutors should perform tasks which required cognitive input from them. (112:1-74).

McMahan, from the University of Northern Colorado in 1975, compared three methods of teaching twenty-nine sight words to fifty-nine retarded readers using three teaching techniques: words visually presented and verbalized concurrently; words visually presented within a sentence while pointing out the word and verbalizing the sentence and words visually presented within a sentence and verbalized while showing a picture of the selected word.

Three experimental and three control groups were formed for a duration of three weeks. Different types of statistical analyses suggested the following conclusion: there were no statistically significant differences among the three methods studied. (109:1-172).

McMahan's findings have been supported by Lindner from Michigan State University, who in 1962 researched similar modes of teaching and arrived at approximately the same conclusions.

Lindner compared two methods of teaching sight words to sixty-three retarded readers using his own developed method and comparing his method with traditional methods. The conclusion was obtained after analyzing statistical procedures, that there was not sufficient evidence provided to determine if Lindner's method (Systematic Phonics - Sight Vocabulary Building, or SP-SVB, additional sight words and phonics) would produce greater reading growth when used as a remedial technique in addition to directed reading in a basal text. (108:1-118).

At Washington State University in 1963, Johnson researched the

comparative effectiveness of three types of reinforcement on the teaching of ten sight words to twelve remedial students using Behavior Modification techniques. Students from the state university trained the twelve subjects on a one-to-one basis. The three methods employed were: complete neutrality; positive verbal reinforcement for correct responses, and material reinforcement for correct responses along with verbal and social reinforcement.

Statistical treatment of the three hypotheses tested in this study yielded these conclusions: none of the three techniques was superior; children respond differently to various types of reinforcement when academic behavior is the desired result; Behavior Modification can be a powerful tool in the learning process once the proper reinforcement is identified for the individual subject. (105:1-91). (Dickerson and Troxel's investigations which will be cited have implications for the Johnson study).

Reading disabilities at the high school level was the concern of Crawford who in 1967 reported on the effects of using multisensory materials to develop a sight vocabulary with high school retarded readers. Many of these children were non-readers or were reading at the first and second grade levels. Crawford's findings were that presentations of selected vocabulary words through the use of the Language Master; electrical tachistoscope; multi-media; multi-sensory and social reinforcement were of significant help in the recognition, and retention of the sight words which were learned. (69:1-25).

Langford described a method he used to aid youngsters with reading disabilities in Vancouver, Canada, in 1969. Children were initially given extrinsic rewards on a criterion schedule which was ultimately

changed to a "fixed ratio" of 2:1. (79:15-16). This use of reinforcement worked well in helping the subjects acquire a sight vocabulary.

Advantages of this method could be discussed in terms of learning theories. Kuethe advocated the use of the "fixed ratio" schedule of reinforcement which rewarded an individual for the completion of a certain task or a certain number of units. According to Kuethe, the "fixed ratio" schedule was the superior type of reinforcement to maintain a specific behavior. For the "fixed minimum" schedule often maintained behavior at the lowest level while the "fixed ratio" schedule usually produced a high rate of performance. (31:57).

## Educationally Handicapped Settings

One of the most challenging endeavors one can undertake as a reading instructor is to work with the educationally handicapped. These children with their special problems need the care and devotion of a dedicated teacher.

Barbara Bodner from Syracuse University in 1973, investigated the teaching of sight vocabulary to pre-school deaf children using student-produced and commercially produced visual referents.

The purpose of the study was to develop, implement and test a sight vocabulary instructional program for pre-school deaf children with student-produced Polaroid photographs providing a visual referent for each word. The major research question was: Will pre-school deaf children learn and retain a significantly greater number of sight words when the sight vocabulary instruction involves the use of: student produced photographs or commercially produced photographs of each picture of the word to be learned?

The results of the analysis of the vocabulary learning were that vocabulary performances between two groups - treatment and control - were not statistically significant. The evidence was inconclusive as to which of the two methods was the better one. (92:1-209).

DuCharme, from the University of Connecticut in 1973 attempted to develop and describe a method of teaching sight words to educable mentally retarded children, learning disabled children, and severely behaviorally disordered children. DuCharme developed his program upon the basis of Hewett's conclusion that four principle factors effected learning in exceptional children: task, reward, structure of the learning context, and the individual child. All four of these factors have equal import for the learning of specific material for these children.

The investigation sought answers to the questions: Is there a way to incorporate a number of relevant redundant cues in a work task so as to decrease the performance differences between three groups of children with the same developmental ages? Is there a relationship between the child's developmental age and his ability to learn words? If the reinforcement schedule of the child were changed would there be a change in the child's task performance? If the child's learning setting were changed would there be a change in the child's task performance?

The hypotheses tested suggested these conclusions: children within a developmental age range of one to four years to seven through eleven years, learned more words over fewer sessions than the three to one year old and the four to eight year old subjects. The data supported the hypothesis that children in the high developmental age group would perform better than children in the low developmental age group. Yet all of the subjects learned the criterion task. (96:1-868).

Finally, in this section of the review of literature, Troxel from North Colorado University in 1974 studied the relationship of selected variables in the teaching of sight words to trainable mentally retarded children using operant conditioning procedures. The subjects' IQ's ranged from twenty to fifty. Their mental ages ranged from one year to eight years, and their chronological ages ranged from five to sixteen years.

The following conclusions have been suggested through the statistical computations of this study: predictions can be made on the number of words learned, the rate of learning, and the rate of retention - however, the rate of learning is a better predictor of short term retention than of long term retention. The extent to which trainable mentally retarded students will learn sight words is independent of standardized tests and independent classification variables. The procedures used in this study were successful in teaching sight vocabulary words to trainable mentally retarded children. (116:1-85).

## Summary of the Review of the Literature

Reading research began in Europe in approximately, 1844. Psychological and physiological curiosities were the motivational factors. Although research from early times to the present shed considerable light on the nature of reading, the process remains extremely complex because of its vast human dimensions. There has been no one method recommended for beginning readers over the other existing ones.

Sight word lists have been in existence prior to 20 B.C. They will probably remain in existence for as long as there is such a process called "reading." The "learnability" of these sight words in terms of which one

should be presented first was non-predictable because of the variety of humans cognitions.

Pre-schoolers were taught sight words with apparently not much assistance from commercial television.

The major objectives in teaching primary children this skill had to do with methodologies. Some of the promising ones were the tracing method; peer tutoring; multi-media techniques; multisensory measures; meaningfulness; familiarity of words and reinforcement. At the primary level, boys exceeded girls in both word recognition and recall while girls did better in oral comprehension. Auditory discrimination was an area of real concern for educators of young readers.

Transfer of learning was evidenced by growth in paragraph writing and spelling.

At the intermediate level, there were conflicting reports on the efficacy of Behavior Modification techniques. Letters, in their various ascending and descending orders, shed some light on which configurations of words were learned because of the position of the lettering. Reflective students performed better than impulsive students; utilizing multi-media materials was vastly superior to the traditional textbook alone. This was manifested both in reading gains and in student morale.

Remedial reading students responded to multisensory and multi-media equipment.

High school remedial readers profited from games, extrinsic reinforcement, multisensory techniques, and especially through devices like the Language Master and the electrical tachistoscope.

Educationally handicapped children were definitely able to learn sight words. From the pre-school deaf child, the educable mentally

retarded, and the trainable mentally retarded - all were able to learn sight words, although the criterion tasks may have been small. In this group, the use of cue stimuli and emphasis on configurations of letters and words, tracing and other bodily techniques were heavily emphasized.

Despite the disagreement about beginning reading methods among recognized reading authorities, some 700 out of approximately 900, were in agreement that a core of instantly recognized words was necessary as an instructional aid in reading programs designed from pre-school to adult education.

(Note: In addition to standard educational research materials, data for this study were obtained from the following sources: The University of New Orleans' Microfilm and ERIC Microfiche Library; The University of Georgia Information Dissemination Center - Office for Computing Activities; DATRIX Comprehensive Dissertation Query Service; Library of the University of Rhode Island; University of Chicago Library; Tulane Library, New Orleans).

# CHAPTER III

# METHODOLOGY

## Introduction

The purpose of this study was to determine the extent to which the Allain reading system improved reading achievement for second grade students over a four month period of time. In order to accomplish this task, it was necessary to implement methods and procedures that would provide for obtaining accurate measures from representative subjects and incorporate statistical analyses of data that were collected.

Described in this chapter are the description of the population and sampling procedures, scope and limitations of the study, variables of the study, the instrument, the procedures for collecting and analyzing data, the research design, the hypothesis, questions which gave guidance to the study, and the summary.

## The Description of Population And Sampling Procedures

This study was conducted utilizing full time second grade students in the New Orleans Public School System during the Fall and Spring semesters, 1976 and 1977. Written permission was granted by the Supervisor of Research, Department of Research and Evaluation, to utilize students and personnel to conduct the study with the stipulations that an Abstract of the investigation be presented to the Supervisor of Research, that a copy of the Allain reading system be brought to the department of evaluation,

and that complete anonymity of subjects, schools, classrooms and personnel be maintained for purposes of confidentiality.

The New Orleans Public School System is a large urban system which serviced 93,364 children during the 1976-1977 school year. It is composed of four school districts, two of which were available for this research. The two other districts were unavailable because they contained high percentages of Title I elementary schools. Most of these Title I schools recently were equipped with reading laboratories and various multi-media materials extraneous to their regular reading programs. These materials would have contaminated or confounded the research findings.

The two districts that were used had a total of forty-five elementary schools whose student population circumscribed the population reading mean of the total 6,483 second grade students enrolled during this academic year. This conclusion was drawn from the results of the CTB/McGraw-Hill's Comprehensive Tests of Basic Skills administered to all first graders last April, 1976. There were 6,483 second grade students enrolled during the period of this study. Of this number, 3,241 were available for the research. Ultimately, 500 subjects were selected or 16 per cent of the available population. Their ages ranged from seven to ten years. The investigation involved 242 boys and 258 girls. The racial composition of the New Orleans Public Schools was reflected in the sampling.

Since children of low, average and high reading ability levels were well represented in both available districts, the experimental district was selected randomly by the flip of a coin. Schools in both experimental and control districts were categorized into their expected

reading ability levels (determined by past performances). The criteria for defining the low, average and high reading ability levels were determined by individual and class mean raw scores for vocabulary and comprehension as measured by the Gates-MacGinitie Reading Test, Primary B, Form I administered to subjects in October, 1976.

The sample was selected in such a way that the sub-groups - low, average and high reading ability levels - were assured to be represented in the research population in proportion to their numbers in the population of all second grade students.

Schools were then divided into subsamples of the desired size and were then randomly selected from each of the three ability levels. Classrooms were then stratified into three subgroups according to both the mean raw score for vocabulary and comprehension for the particular class and for each child within a particular class.

## Scope and Limitations of the Study

This study involved 500 full time second grade students from seven to ten years who were enrolled in the public schools during the 1976-1977 academic year. There were twenty classrooms and twenty teachers involved. Since teachers could participate on a voluntary basis, selection was done randomly with replacement.

The treatment group contained 250 students; the control group contained 250 students. The study began in mid-October of 1976 and ended in mid-February, 1977. No selected school or teacher refused participation.

## The Variables of the Study

The treatment variable in this study was the Allain Color Pack reading system. The dependent variables were raw scores in vocabulary and comprehension. Independent variables included three reading ability levels and the regular reading program.

Variables of sex, race, age, IQ, and socio-economic status were not controlled. Eight classes of extraneous variables were controlled through the research design so that their effects would not become confounded with the effect of the treatment variable. These eight classes of extraneous variables were: history, maturation, testing, instrumentation, statistical regression, selection, experimental mortality, and selection-maturation interaction.

## The Instrument

The Gates-MacGinitie Reading Test, Primary B, Forms I and II were used in this investigation to supply pre and posttests data. These tests were obtained from Teachers College Press, Columbia University, New York. The tests were developed by Arthur Gates and Walter MacGinitie for the purpose of measuring reading achievement in second grade students.

There were forty-eight vocabulary items and thirty-four comprehension items on each test. Items were selected on the basis of a nationwide tryout involving approximately 25,000 students. About 800 pupils responded to the particular item intended for their grade level. Pupil's responses were tabulated, and difficulty and discrimination indices were computed for each item chosen for a particular grade. After the selection of items, norms were developed by administering the tests

to a nationwide sample of approximately 40,000 students from 38 communities. These communities were selected on the basis of geographical position, average family income, average family educational level and average family size. The main normative testing carried out in October of 1964 was completed in January, 1965.

Alternate-form reliability coefficients were obtained by administering one form of the test on one day and a second form on another day. Alternate-form reliabilities for vocabulary and comprehension were .87 and .81 respectively.

Split-half reliability coefficients were obtained by administering one half of the test and measuring the degree to which the first half duplicated the performance of the sample on the other half during the same test period. Since the split-half method of determining reliability disregards major sources of test error, the split-half reliabilities were higher than the corresponding alternate-form reliabilities. Split-half reliability coefficients for vocabulary was .91 and for comprehension .94.

Content validity, as such, was not discussed in the technical manual for the tests, nor was any data so organized for specific use as evidence of validity.

## The Procedures for Collecting and Analyzing Data

Two weeks prior to data collection, participating principals and teachers were informed of their selection for participation in the study. The objective of the research was explained, and orientation to the use of the treatment variable was explained. All personnel understood that complete anonymity and confidentiality had to be followed.

Letters seeking parental consent were sent home to assure parents of the anonymity of the research, and to inform them that their child's test scores would be provided to them through the researcher upon request.

On Tuesday of the second week of October, 1976 packets of testing materials were distributed to the twenty classrooms. Tests were administered to all subjects on Thursday and Friday of that week. Teachers were encouraged to follow every difective in the manual, particulary in regard to timing.

On Monday following the testing, the pre-test data were collected. Ten Allain Color Pack reading systems were distributed to the experimental teachers who began to use them immediately.

After the tests were scored and coded, and vocabulary and comprehension mean raw scores were obtained for each subject and for each classroom, the two groups were placed into one of the three ability levels depending upon the frequencies of individual mean scores in both vocabulary and comprehension.

The Allain treatment was used prior to each reading group's regular lesson for a period of at least five minutes and not more than ten minutes daily throughout the study.

On Friday of the second week of February, the treatment was stopped. The following Wednesday, the posttests were given. During the subsequent week, all tests were scored by a team of students from the university who had scored the pre-test. Subjects and classrooms were matched with their original codes. The mean raw scores were entered for each subject and classroom adjacent to their pre-test scores. These scores were used in the statistical analyses and computations for interpretations of the

study.

## The Research Design

A statistical technique used to test the hypothesis and to answer the questions which directed this study was a Frequency count using a chi-square test to place the treatment group and the control group into one of three reading levels determined by their individual raw scores in vocabulary and comprehension. Observations were made on the frequencies with which each subject placed within a certain level compared to the frequency distribution expected by chance (Pi). A 2 x 3 Contingency Table analysis was used to determine the number of observations in each cell where the 2 factors were the two reading methods and the 3 factors were the three reading levels; a Two-Way Analysis of Variance was used where the subjects in the treatment and control groups were randomly divided into sub-groups of 125 each - the cell values were the sums of the 125 observations (raw scores) which permitted one group to be measured on comprehension and the other to be measured on vocabulary. An F-ratio at the .05 level of confidence was the criterion for acceptance or rejection of the hypothesis.

## Hypothesis

Second grade students who used the Allain treatment for a period of four months, in addition to their regular reading program, will show additional gains either in vocabulary or in comprehension or in both, above expected reading growth as measured by the Gates-MacGinitie Reading Tests with significance of the difference at the .05 level of confidence.

## Questions for the Study

(1) Did the treatment variable in this study make a difference in vocabulary or comprehension growth in the experimental group?

(2) Was there any shifting in the two groups in terms of drops and gains between the three levels for both vocabulary and comprehension?

(3) Did subjects in the low ability treatment group make a greater shift out of the low group into the average and high groups as compared to the low ability subjects in the control group?

(4) How representative were the findings and can the results be generalized to similar circumstances and subjects?

## Summary

The procedures and analyses described in this chapter were utilized in the implementation of this study.

Simple random sampling was used to select the district and the schools which were involved. Classrooms used were stratified in such a way that the three subgroups in the population would be represented in the sample in proportion to their numbers in the population itself.

The investigation was undertaken to ascertain what effects the experimental treatment might have in improving reading achievement in selected second grade students.

Data from 500 subjects representing twenty classrooms were scored and organized for statistical computations.

The results of the statistical computations were computerized, analyzed and interpreted in the light of the population and variables investigated.

## CHAPTER IV

## PRESENTATION, ANALYSES, AND DISCUSSION OF DATA RESULTS

Presented in chapter four is an analysis of data relative to the questions for the study and the hypothesis tested. A summary and discussion of findings follow the presentation and analysis of data.

The purpose of this study was to measure the extent to which the Allain Color Pack reading system effected reading achievement in terms of increased vocabulary and comprehension skills for selected second grade students in the New Orleans Public School System.

The data for the study were collected during the Fall and Spring semesters, 1976 and 1977 utilizing full time second grade students. The population in the study consisted of 500 subjects. Districts and schools were randomly selected so that both groups contained the desired size for the three subgroups. Classrooms were stratified into the low, average and high reading ability levels according to their class mean raw scores for vocabulary and comprehension. Raw scores for each child within a class in vocabulary and comprehension permitted the placement of each subject into one of the three reading levels.

The following hypothesis and questions gave direction to the study:

Second grade students who used the Allain treatment for a period of four months, in addition to their regular reading program, will show additional gains either in vocabulary or in comprehension or in both, above expected reading growth as measured by the Gates-MacGinitie Reading

Tests with significance of the difference at the .05 level of confidence.

(1) Did the treatment variable in this study make a difference in vocabulary or comprehension growth for the experimental group?

(2) Was there any shifting in the two groups in terms of drops and gains between the three levels for both vocabulary and comprehension?

(3) Did subjects in the low ability treatment group make a greater shift out of the low level into the average and high levels as compared to the low ability subjects in the control group?

(4) How representative were the findings, and can the results be generalized to similar circumstances and subjects?

## Presentation and Analysis of Data

The presentation of the analysis of data is arranged according to the questions that gave direction to this study. The hypothesis tested will be presented after the analyses of data for the questions investigated.

### Research Question Number 1

Did the treatment variable in this study make a difference in vocabulary or comprehension growth in the experimental group?

Table 1 shows the mean raw scores for both experimental and control groups in vocabulary and comprehension prior to the experimental manipulation and after the exposure to the treatment.

At the beginning of the experiment there were no statistically significant differences between raw scores in vocabulary and comprehension for the control and treatment groups.

At the end of the experiment the control group gained an average

raw score value in vocabulary of 4.960 as compared to a gain of 6.944 for the experimental group. The control group gained an average raw score value in comprehension of 3.160 as compared to a gain of 6.048 for the experimental group.

The above data and Table 1 which immediately follows, suggest that the experimental manipulation in this investigation had an effect on reading achievement.

TABLE 1. — Summary of Statistical Analyses for Experimental and Control Groups on Vocabulary and Comprehension

**Experimental Group**

| Vocabulary | | Comprehension | |
|---|---|---|---|
| **Pre-Test** | | | |
| Mean Raw Score | $\bar{X}$ = 21.800 | Mean Raw Score | $\bar{X}$ = 14.312 |
| National Percentile | 49% | National Percentile | 55% |
| **Posttests** | | | |
| Mean Raw Score | $\bar{X}$ = 28.744 | Mean Raw Score | $\bar{X}$ = 20.360 |
| National Percentile | 49% | National Percentile | 51% |

**Control Group**

| Vocabulary | | Comprehension | |
|---|---|---|---|
| **Pre-Test** | | | |
| Mean Raw Score | $\bar{X}$ = 21.688 | Mean Raw Score | $\bar{X}$ = 13.768 |
| National Percentile | 49% | National Percentile | 53% |
| **Posttests** | | | |
| Mean Raw Score | $\bar{X}$ = 26.648 | Mean Raw Score | $\bar{X}$ = 16.928 |
| National Percentile | 40.5% | National Percentile | 37% |

**Gain in Mean Score**

| Experimental Group | | Control Group | |
|---|---|---|---|
| Vocabulary | 6.944 | Vocabulary | 4.960 |
| Comprehension | 6.048 | Comprehension | 3.160 |

Research Question Number 2

Was there any shifting in two groups in terms of drops and gains between the three ability levels for both vocabulary and comprehension?

Table 2 shows the frequency distributions in the low, average and high levels for both the control and experimental groups in pre and post-tests data as compared with the expected distribution frequencies.

In the pre-test for vocabulary, the experimental group had 120 subjects fall into the low reading ability level out of the total 250 subjects, or 48% fell into that category as compared to 126 (50.4%) for the control group. Both groups exceeded the expected frequency distribution (Pi) of 85 or (34%).

In the average level there were 59 (23.6%) students in the experimental group as compared to 57 (22.8%) in the control group. The expected distribution here was 80 (32%). In the high level there were 71 (28.4%) students in the experimental group as compared to 67 (26.8%) in the control group. The expected frequency here was 85 (34%).

In the posttests 93 of 250 subjects or (37.2%) of the experimental group fell in the low reading ability level as compared to 105 (42.5%) in the control group. The expected frequency here was 77.5 (31%). These figures indicate a <u>decrease</u> of 27 (120-93) subjects in the low ability level in the experimental group as compared to a <u>decrease</u> of 21 (126-105) in the control group.

In the average ability level there were 66 (26.4%) subjects in the experimental group as compared to 86 (34.8%) in the control group. The expected distribution here is 87.5 (35%). These figures indicate a <u>gain</u> of 7 (66-59) subjects in the average level in the experimental group as

figures indicate a decrease of 27 (120 - 93) subjects in the low ability level in the experimental group as compared to a decrease of 21 (126 - 105) in the control group.

In the average ability level there were 66 (26.4%) subjects in the experimental group as compared to 86 (34.8%) in the control group. The expected distribution here is 87.5 (35%). These figures indicate a gain of 7 (66-59) subjects in the average level in the experimental group as compared to a gain of 29 (86 - 57) in the control group. In the high ability level there were 91 (36.4%) subjects in the experimental group as compared to 59 (23.7%) in the control group. The expected frequency here is 85 (34%). These figures indicate a gain of 20 (91-71) subjects in the high ability level in the experimental group as compared to a decrease of 8 (67-59) in the control group.

This data indicate a significant shift in frequencies from the low to the high level in the experimental group.

In the pre-test setting for comprehension in the experimental group 98 of the 250 subjects (39.2%) fell in the low ability level as compared to 98 (39.2%) for the control group. Again, both groups exceeded the expected frequency here of 85 (34%). In the average level there were 77 (30.8%) subjects in the experimental group as compared to 88 (35.2%) in the control group. The expected distribution here was 80 (32%). In the high level there were 75 (30.0%) subjects in the experimental group as compared to 64 (25.6%) in the control group. The expected frequency here was 85 (34%).

In the posttests setting for comprehension, 75 or (30.0%) of 250 experimental subjects fell in the low ability group as compared to 112 (44.8%) in the control group. The expected frequency here is 77.5 (31%).

compared to a gain of 29 (86-57) in the control group. In the high ability level there were 91 (36.4%) subjects in the experimental group as compared to 59 (23.7%) in the control group. The expected frequency here is 85 (34%). These figures indicate a gain of 20 (91-71) subjects in the high ability level in the experimental group as compared to a decrease of 8 (67-59) in the control group.

This data indicate a significant shift in frequencies from the low to the high level in the experimental group.

In the pre-test setting for comprehension in the experimental group 98 of the 250 subjects (39.2%) fell in the low ability level as compared to 98 (39.2%) for the control group. Again, both groups exceeded the expected frequency here of 85 (34%). In the average level there were 77 (30.8%) subjects in the experimental group as compared to 88 (35.2%) in the control group. The expected distribution here was 80 (32%). In the high level there were 75 (30.0%) subjects in the experimental group as compared to 64 (25.6%) in the control group. The expected frequency here was 85 (34%).

In the posttests setting for comprehension, 75 or (30.0%) of 250 experimental subjects fell in the low ability group as compared to 112 (44.8%) in the control group. The expected frequency here is 77.5 (31%). These figures indicate a decrease of 23 (98-75) subjects in the low level in the experimental group as compared to an increase of 14 (112-98) in the control group.

In the average level there were 92 (32.8%) subjects in the experimental group as compared to 87 (34.8%) in the control group. The expected frequency here is 87.5 (35%). These figures indicate a gain of 15 (92-77) subjects in the average level in the experimental group as compared to

a decrease of 13 (64-51) in the control group.

This data indicate a significant shift in frequency distribution from the low to the average and high levels in comprehension in the experimental group as compared to the control group.

The data above support the answer to question number 2. There was shifting and dropping among the three reading ability levels between the two groups in favor of the experimental group.

TABLE 2. — Frequency Count on Pre and Posttests Data for Experimental and Control Groups in Vocabulary and Comprehension

Pre-Test

| | Vocabulary | | | Comprehension | | |
|---|---|---|---|---|---|---|
| | Exper. | Control | Expected($P_i$) | Exper. | Control | Expect.($P_i$) |
| Low Level | 120 | 126 | 85 | 98 | 98 | 85 |
| Avg. Level | 59 | 57 | 80 | 77 | 88 | 80 |
| High Level | 71 | 67 | 85 | 75 | 64 | 85 |
| Chi-Square Values | $\chi^2$=22.23 | $\chi^2$=30.20 | | $\chi^2$=3.28 | $\chi^2$=7.98 | |

Posttests

| | Vocabulary | | | Comprehension | | |
|---|---|---|---|---|---|---|
| | Exper. | Control | Expected($P_i$) | Exper. | Control | Expect.($P_i$) |
| Low Level | 93 | 105 | 77.5 | 75 | 112 | 77.5 |
| Avg. Level | 66 | 86 | 87.5 | 92 | 87 | 87.5 |
| High Level | 91 | 59 | 85.0 | 83 | 51 | 85.0 |
| Chi-Square Values | $\chi^2$=8.81 | $\chi^2$=21.24 | | $\chi^2$=0.36 | $\chi^2$=22.13 | |

The Chi-Square Values indicate the measure for the closeness of the frequencies in the two groups as compared to the national frequencies for the Gates-MacGinitie Reading Tests.

Research Question Number 3

Did subjects in the low ability treatment group make a greater shift out of the low group into the average and high groups as compared to the low ability subjects in the control group?

As Table 2 indicated, low ability subjects in the treatment group shifted from the low into the average and high levels in both vocabulary and comprehension. Specifically, 27 subjects from the low level in the experimental group shifted into the higher levels in vocabulary while 23 low level subjects in the treatment group shifted from the low ability group into higher levels in comprehension.

More subjects in the experimental group shifted out of the low group into higher groups as compared to the shifts of subjects in the control group.

Research Question Number 4

How representative were the findings and can the results be generalized to similar circumstances and subjects?

There were 500 subjects in this investigation. These subjects were randomly selected from a population of 3,241 second grade students representing 16% of the available frequencies.

The findings and results of this investigation can be generalized to similar circumstances and subjects in the New Orleans Public Schools.

Hypothesis

Second grade students who used the Allain treatment for a period of

four months, in addition to their regular reading program, will show additional gains either in vocabulary or in comprehension or in both, above expected reading growth as measured by the Gates-MacGinitie Reading Tests with significance of the difference at the .05 level of confidence.

In Table 3 is further summarized data which explain Table 2. In Table 3, a 2 x 3 Contingency Table was used to analyze the $\chi^2$ calculations. In summary, these tables indicate that there were no significant differences between the criterion variables in both treatment and control groups prior to the investigation. Post experimental data, however, revealed statistically significant differences from pre to posttests at the end of the investigation.

Results of the $\chi^2$ calculations indicate acceptance of the hypothesis tested.

TABLE 3. — Contingency Table Analysis

Experimental vs. Control

Vocabulary Pre-Test

| | Experimental | Control | Totals |
|---|---|---|---|
| Low Level (0–18) | 120 (123) | 126 (123) | 246 |
| Avg. Level (19–27) | 59 (58) | 57 (58) | 116 |
| High Level (28–48) | 71 (69) | 67 (69) | 138 |
| | 250 | 250 | 500 |

$X^2 = 0.30$

$X^2$ is asymptotically distributed as $\chi^2$. *

$X^2 = 0.30$
$< \chi^2 = 5.99$ (critical value) — Therefore, there is no statistically significant difference between groups in vocabulary.

$$X^2 = \sum_{i=1}^{6} \frac{(O_i - E_i)^2}{E_i}$$

$E_i = (R_i \times C_i) / \text{Grand Total}$

$R_i$ - The Row Total Containing the ith Class.
$C_i$ - The Column Total Containing the ith Class.

$O_i$ - The Observed Frequencies in the ith Class

$E_i$ - The Expected Frequencies in the ith Class.

$X^2 = \sum_{i=1}^{6} \frac{(O_i - E_i)^2}{E_i}$ - The formula for $X^2$ approaches Chi-Square calculations.

*$X^2$ closely approaches the $\chi^2$ distribution.

TABLE 3 continued

Experimental vs. Control
Vocabulary Posttests

| | Experimental | Control | Totals |
|---|---|---|---|
| Low Level (0-23) | 93 (99) | 105 (99) | 198 |
| Avg. Level (24-34) | 66 (76) | 86 (76) | 152 |
| High Level (35-48) | (75) 91 | (75) 59 | 150 |
| | 250 | 250 | 500 |

$\chi^2 = 10.19$ $\chi^2 = 5.99$ 2.95

$\chi^2 = 9.2$ .99

Therefore there is a statistically significant difference.
Contributions to $\chi^2$:

Low - .727
Average - 2.632
High - 6.827

Experimental vs. Control
Comprehension Pre-Test

| | Experimental | Control | Totals |
|---|---|---|---|
| Low Level (0-10) | 98 (98) | 98 (98) | 196 |
| Avg. Level (11-17) | 77 (82.5) | 88 (82.5) | 165 |
| High Level (18-34) | (69.5) 75 | (69.5) 64 | 139 |
| | 250 | 250 | 500 |

$\chi^2 = 1.60$

There is no statistically significant difference.

TABLE 3 continued

Experimental vs. Control

Comprehension Posttests

| | Experimentals | Controls | Totals |
|---|---|---|---|
| Low Level (0-15) | 75 (93.5) | 112 (93.5) | 187 |
| Avg. Level (16-24) | 92 (89.5) | 87 (89.5) | 179 |
| High Level (25-34) | (67) 83 | (67) 51 | 134 |
| | 250 | 250 | 500 |

$\chi^2$ = 15.10

$\chi^2_{.95}$ = 5.99

$\chi^2_{.99}$ = 9.2

There is a statistically significant difference.

Contributions to $\chi^2$:

Low - 7.321

Average - 0.140

High - 7.642

A Two-Way Analysis of Variance was used to test the hypothesis. Table 4 shows the ANOVA where the experimental and control groups were randomly divided into two additional groups of 125 each. Both groups were measured on vocabulary and comprehension. All of the observations were independent.

The experimental and regular teaching methods were considered factor "A" while the criterion variables were considered factor "B". The cell values were the sums of the observations.

The Two-Way Analysis of Variance was used to test for significance of differences between variances.

Table 5 which summarized the Analysis of Variance showed the F-ratio statistically significant at the .01 level of confidence.

Based upon the preceding and subsequent tables, Tables 4 and 5, the specific research hypothesis of this investigation was accepted.

TABLE 4. — The Two-Way Analysis of Variance Measuring Subgroups in Vocabulary and Comprehension

ANOVA

| | Experimental | Control | |
|---|---|---|---|
| Vocabulary | 3710 | 3330 | 7040 |
| Comprehension | 2480 | 2131 | 4611 |
| | 6190 | 5461 | |

The cell values are the sums of 125 observations (Raw Scores).

| | | |
|---|---|---|
| SS Treatments | = | 1,062,820 |
| SS Reading Ability | = | 11,800,082 |
| SS Interaction | = | 1.984 |
| SS Error | = | 43,564.512 |
| SS Total | = | 56,429.398 |

| | | |
|---|---|---|
| S.S. | = | Sum of Squares |
| d.f. | = | Degrees of Freedom |
| m.s. | = | Mean Square = $s.s./d.f.$ |
| F. | = | $m.s._T / m.s._E$ |

(Mean Square for treatment ÷ the mean square for error)

TABLE 5. — The Analysis of Variance Table

ANOVA

| Source | S.S. | d.f. | M.S. | F |
|---|---|---|---|---|
| Treatments | 1,062,820 | 1 | 1062,80 | 12.10* |
| Reading Ability | 11,800,082 | 1 | (Irrelevant) | |
| T.x R. A. (Interaction) | 1.984 | 1 | 1.984 | <1 |
| Residual (Error) | 43,564.512 | 496 | 87.83 | |
| Total | 56,429.398 | 499 | | |

$F_{1,\infty}(.95)=3.84$ $F_{1,\infty}(.99)=6.63$

Therefore the treatment method was the statistically better method. The F-ratio at the .01 level of confidence was the criterion for acceptance of the hypothesis.

*P <.01

## Summary of Findings

The Allain treatment showed higher mean scores in both vocabulary and comprehension in the experimental group than the comparable raw scores in the control group. These gains were both statistically significant at the .01 level of confidence.

The Contingency Table Analysis revealed no statistically significant differences between the two groups for the pre-test scores in both vocabulary and comprehension. This is how it should have been since the classrooms were randomly chosen then stratified. The posttests raw scores revealed a statistically significant difference between the two groups for vocabulary and comprehension among the three ability levels.

In the Two-Way Analysis of Variance a statistically significant difference at the .01 level using an F-ratio which compared the two methods with the criterion variables was revealed. The analysis of this data indicated that the Allain treatment was better than the regular method.

The interaction between factors "A" and "B" was extremely low. This suggested that the treatment method showed <u>equal</u> growth in vocabulary and comprehension as compared to the vocabulary and comprehension growth in the regular reading program.

# CHAPTER V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATION

This chapter summarizes the study. It contains conclusions derived from data analyses and offers recommendation for further action and research.

### Purpose of the Study

The purpose of this study was to measure the extent to which the Allain Color Pack reading system effected reading achievement in terms of increased vocabulary and comprehension skills for selected second grade students in the New Orleans Public School System. In order to achieve this purpose it was necessary to ask the following questions?

(1) Did the treatment variable in this investigation make a difference in vocabulary or comprehension growth in the experimental group?

(2) Was there any shifting in the two groups in terms of drops and gains among the three levels for both vocabulary and comprehension?

(3) Did subjects in the low ability treatment group make a greater shift out of the low group into the average and high groups as compared to the low ability subjects in the control group?

(4) How representative were the findings, and can the results be generalized to similar circumstances and subjects?

The hypothesis tested in this study was: Second grade students who use the Allain treatment for a period of four months, in addition to

their regular reading program, will show additional gains either in vocabulary or comprehension or both, above expected reading growth as measured by the Gates-MacGinitie Reading Tests with significance of the difference at the .05 level of confidence.

## Procedures

This study was experimental in nature. It was conducted during the first and second semesters, 1976-1977.

Two weeks prior to data collection, participating principals and teachers were informed of their selection for participation in the study. The objective of the research was explained, and orientation to the use of the treatment variable was explained. After the tests were scored and coded, and vocabulary and comprehension mean raw scores were obtained, each classroom was stratified into subgroups reflecting their numbers in the total second grade population. The subgroups were the low, average and high reading ability levels.

The Allain treatment was used daily prior to each reading group's regular reading lesson for a period of five minutes throughout the study.

On Friday of the second week of February, the Allain treatment was stopped. The following week, the Gates-MacGinitie, Primary B, Form II was administered. During the subsequent week, posttests were hand scored by a team of students from the university. Subjects and classrooms were matched with their original codes. The mean raw scores in vocabulary and comprehension for each classroom and subject were entered adjacent to the pre-test scores. These scores were used in the statistical analyses and computations for interpretation of the study. Statistical methods utilized were a Frequency count using a chi-square test; a

2 x 3 Contingency Table Analysis, and a Two-Way Analysis of Variance.

## Findings

Based upon the above mentioned statistical methods and in direct reference to Table 2, the movements within the three reading ability levels were clearly demonstrated. There was a definite shift of subjects from the low level in the treatment group into higher reading ability levels. The control group dropped students from the average and high groups into the low ability group. Both the 2 x 3 Contingency Table Analysis using a chi-square test, and the Two-Way Analysis of Variance were both statistically significant at the .01 level in favor of the Allain treatment.

In the experimental group, twenty-seven subjects shifted either into the average or high groups from their original placement in the low ability level in vocabulary. In comprehension, twenty-three subjects in the treatment group shifted from the low level to either the average or high reading ability levels.

In the control group there were twenty-one drops from the average and high groups into the low ability group. In the control group, fourteen subjects shifted from the high and average ability groups into the low ability group in comprehension.

The gains in raw scores for the treatment group were 6.944 in vocabulary and 6.048 in comprehension. The gains in the control group were 4.960 in vocabulary and 3.160 in comprehension.

The difference in raw score gains in vocabulary for the treatment group was 1.984 and in comprehension 2.888.

## Conclusions

The following conclusions, based on the findings from the second grade subjects suggested:

(1) Subjects in the treatment group made more gains in vocabulary and comprehension than the subjects in the control group.

(2) The Contingency Table Analysis revealed no statistically significant differences between the two groups on the pre-test raw scores because of the random selection of schools and stratification of classrooms which rendered the two groups relatively equal at the onset of the research.

(3) The Contingency Table Analysis for the posttests scores revealed a statistically significant difference between the two groups for both vocabulary and comprehension for each of the three ability levels.

(4) The Two-Way Analysis of Variance measured vocabulary and comprehension by randomly dividing the two groups into two subgroups of 125 each. The ANOVA was statistically significant at the .01 level in favor of the treatment group.

The random division of the treatment group and the control group into two groups of 125 each was done because observations must be independent before an analysis of variance can be performed. The Analysis of Variance revealed a high statistically significant difference at the .01 level between the two reading methods.

## Recommendation

This investigation should be replicated in different settings within the New Orleans Public School System.

# APPENDIXES

# APPENDIX I

## Letters Granting Permission for the Investigation

# NEW ORLEANS PUBLIC SCHOOLS

4100 TOURO STREET · NEW ORLEANS, LOUISIANA 70122

GENE GEISERT
Superintendent

(504) 288-6561


October 11, 1976

Mrs. Althea S. Allain
4932 Chantilly Dr.
New Orleans, LA 70126

Dear Mrs. Allain:

Your request to conduct research in elementary schools in the New Orleans Public Schools system is hereby approved subject to the conditions stated below.

1. That you secure the approval of each school principal after apprising them of their responsibilities in the research

2. That procedures as outlined in your dissertation proposal are exactly followed

3. That you furnish this office with a set of materials which is described as the "Allain Color Pack" reading system

4. That you furnish this office with an abstract of the results of the project upon its completion.

It is hoped that you are satisfied in the above requests, and wish you success in your research efforts.

Sincerely,

George A. Harris

George A. Harris
Supervisor of Research
Department of Research
and Evaluation

GAH:gh
cc: Dr. Harold Porter
Dr. Stacy Rockwood

P.S Please understand that anonymity of schools and subjects (teachers and students) should be preserved in all reporting of results.

**MEMORANDUM**

To: Dr. George Harris, Supervisor of Program Evaluation

From: Matthew Proctor, District IV Superintendent

Everett J. Williams, District I Superintendent

Subject: Research Proposal from Mrs. Althea S. Allain — The Effects of the Allain Reading System on Reading Achievement

Date: October 11, 1976

We have had a conference with Mrs. Allain in reference to her proposed study. We approve the study if it fulfills all the requirements as stipulated by your department.

Matthew Proctor
District IV Superintendent

Everett J. Williams
District I Superintendent

MP:ff

## APPENDIX II

Brochure Illustrating the Allain
Color Pack Reading System

# THE ALLAIN COLOR PACK

Patent No. 3,823,492

CONTENTS:

780 color cards
39 correlated readers
30 progress charts
1 teacher's manual
390 color tests
7 color discs
7 crayons

## Purchase From:

EDUCATIONAL DEVELOPMENT, INC.
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SUITE 103
NEW ORLEANS, LOUISIANA 70116

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